

Claims

1. Method for compensating variations in the fuel composition in a gas turbine system consisting of at least two burner stages to be operated in parallel, in which the supply of fuel to at least two of the burner stages is adjusted in response to variations in the fuel composition, in which the fuel split between the burner stages is adjusted to a target value or kept constant at a target value during the adjustment of the supply of fuel.
- 10 2. Method according to claim 1, in which the gas turbine system comprises a pilot burner stage and a main burner stage and in which when the supply of fuel is adjusted, the fuel split between the pilot burner stage and the main burner stage is adjusted to a target value or kept constant at a target value.
- 15 3. Method according to claim 1 or 2, in which, for adjusting the supply of fuel for at least two of the burner stages, a fuel control valve and the associated characteristic values of the regulator are in each case made available with the following steps:
 - 20 - carrying out a real time analysis of the fuel composition,
 - determining the current Wobbe index of the fuel on the basis of the result of the analysis, and
 - updating the characteristic values of the regulator for the control valves on the basis of the Wobbe index determined.
- 25 4. Control device for adjusting the supply of fuel in a gas turbine system consisting of at least two burner stages to be operated in parallel and a fuel supply control, which for the burner stages in each case comprises a fuel control valve (15, 17) and the associated characteristic values of the regulator, with the following:

- an analyzer (25) for analyzing the fuel composition in real time,
- a computing unit (27) for calculating the current Wobbe index of the fuel, as well as
- 5 - an updating unit (29) for updating at least the characteristic values of the regulator of two control valves allocated to the different burner stages on the basis of the Wobbe index determined.

10 5. Gas turbine system with at least two burner stages to be operated in parallel and a control device according to claim 4.

15 6. Gas turbine system according to claim 5, characterized in that it comprises a pilot burner stage and a main burner stage and in that the updating unit (29) of the control device for updating the characteristic values of the regulator of the fuel control valves (15, 17) of the main burner stage as well as the pilot burner stage is embodied on the basis of the determined Wobbe index.

20 7. Gas turbine system according to claim 5 or 6, characterized in that said system comprises a fuel line (13), through which a fuel flow passes, and a branching point (33) on the fuel line (13) for branching off a part of the fuel and for introducing the branched off fuel as an analysis sample flow into a branch line (31), which feeds the analysis sample flow 25 to the analyzer (25), in which the branching point (33) is arranged in such a way on the fuel line (13) that the time, which is required by the fuel flow in order to cover the path from the branching point (33) up to the fuel control valves (15, 17), is long enough, so that the analysis sample flow can 30 cover the stretch of way up to the analyzer (25), the analyzer can analyze the fuel composition, the computing unit (27) can

calculate the Wobbe index, the updating unit (29) can update the characteristic values of the regulator and the control device can adjust the fuel control valves (15, 17) before the fuel flow reaches the fuel control valves (15, 17).